GASTROENTEROLOGY

Acute Fatty Liver of Pregnancy

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ABSTRACT

Acute fatty liver of pregnancy (AFLP) is a rare life-threatening complication of pregnancy. It usually occurs in late third trimester. There is usually severe liver dysfunction with hypofibrinogenemia, hypoalbuminemia, hypocholesterolemia and prolonged clotting times. The most critical component of caring for a woman with AFLP is the delivery of her fetus.

Keywords: Acute fatty liver of pregnancy, jaundice in pregnancy

Acute fatty liver of pregnancy (AFLP) is a rare life-threatening complication of pregnancy that affects one in 7,000 to one in 16,000 deliveries.1-3

CASE REPORT

Twenty-six years old Mrs. XYZ was admitted in labor room at 9.30 pm on 19/2/2011 with nine months of amenorrhea and jaundice. She had complaints of yellow-colored sclera and urine since eight days and vomiting since three days. Her last menstrual period (LMP) was 13/5/2010. So, her estimated due date (EDD) was 20/2/2011. She had taken regular antenatal care from private hospital. She was 2nd gravida with previous male child of two years old, delivered by lower segment cesarean section (LSCS) for premature rupture of membranes and failed induction. There was no significant past history.

On examination, she was conscious, co-operative and well-oriented. Temperature was normal, pulse - 88/min, blood pressure (BP) -120/80 mmHg, sclera was yellow and respiratory and cardiovascular systems were normal. On abdominal examination, uterus was term size, cephalic presentation, fetal heart sounds normal, uterus was relaxed and no scar tenderness. On per vaginum, cervix was closed.

On laboratory test, hemoglobin (Hb) 10.4 g/dl, B+ve, bile salts and pigment were present in urine, serum bilirubin 5.9 mg/dl, prothrombin time (PT) and activated partial thromboplastin time (aPTT) were markedly raised, low serum fibrinogen, elevated fibrin degradation products (FDP), blood sugar 20 mg/dl, raised liver enzymes, markers of hepatitis A, B, C, E normal.

Clinical diagnosis of AFLP was suspected and pregnancy was terminated by LSCS by keeping ready packed cell infusion, fresh frozen plasma (FFP) and cryoprecipitate. Live male child of 2.6 kg was delivered. Heyman’s stitches were taken to control portpartum hemorrhage (PPH). Abdominal drain was kept. She was shifted to ICU and managed by Critical Care Specialist, Gynecologist, Gastroenterologist and Anesthetist.

On Day 2, abdominal ultrasound showed fatty changes with bright echo texture in liver; ascites was present. Total eight FFP, 5 cryoprecipitate and six packed cells were infused. She was shifted to ward on 10th day and discharged on Day 16. Mother and baby were normal on follow-up on Day 30.

DISCUSSION

Jaundice during pregnancy has many causes such as cholestasis, cholelithiasis, viral hepatitis, pre-eclampsia with or without HELLP syndrome and AFLP. Acute liver failure during pregnancy may be caused by fulminant viral hepatitis, drug-induced hepatic toxicity or AFLP. “Acute yellow atrophy of the liver”, a rare and fatal complication of pregnancy, was first described by Stander and Cadden in 1934.1,2 Later it is termed as
AFLP of pregnancy. Fatty liver is more common in nulliparas with a male fetus and in 15% of cases there is a multifetal gestation. It usually occurs in late third trimester, rare cases have been reported as early as 23 and 26 weeks. It is characterized by microvesicular steatosis in the liver.

The precise etiology of AFLP is not known. It is thought to be due to a mitochondrial dysfunction in the oxidation of fatty acids leading to an accumulation in hepatocytes. The infiltration of fatty acids causes acute liver insufficiency. Some, if not all, cases of maternal fatty liver are due to recessively inherited mitochondrial abnormalities of fatty acid oxidation. These defects were first studied in children with Reye-like syndromes and were later found to be associated with microvesicular liver disease in pregnancy. Hallmarks of the disease includes jaundice, coagulopathy and encephalopathy.

Women who develop AFLP are more likely to have a heterozygous long-chain 3-hydroxyacyl-coenzyme A dehydrogenase (LCHAD) deficiency. LCHAD is found on the mitochondrial membrane and is involved in the beta oxidation of long-chain fatty acids. This gene mutation is recessive; therefore, outside of pregnancy under normal physiological conditions, women have normal fatty acid oxidation. However, if the fetus is homozygous for this mutation, it will be unable to oxidize fatty acids. These acids are passed to the mother, who, because of diminished enzyme function, cannot metabolize the additional fatty acids.

Fatty liver is characterized by accumulation of microvesicular fat that literally ‘crowds out’ normal hepatocytic function. Gross examination shows a small, soft, yellow and greasy liver. Prominent histological abnormalities are swollen hepatocytes with central nuclei and cytoplasm filled with microvesicular fat, periportal sparing, and minimal hepatocellular necrosis. Although the diagnosis of AFLP can be made by liver biopsy, today the diagnosis is usually made clinically. Ultrasound and computed tomography have been used but the sensitivity and specificity of these imaging studies are insufficient to make a definitive diagnosis and false negative results are common.

Symptoms usually develop over several days to weeks and include malaise, anorexia, nausea and vomiting, epigastric pain and progressive jaundice. In many women, persistent vomiting in late pregnancy is the major symptom. There is usually severe liver dysfunction with hypofibrinogenemia, hypoalbuminemia, hypercholesterolemia and prolonged clotting time. Hyperbilirubinemia usually is <10 mg/dl and there are modestly elevated serum transaminase levels. Endothelial cell activation and exudation cause hemoconcentration, leukocytosis and thrombocytopenia. Markedly reduced antithrombin III levels have also been described. The syndrome continues to progressively worsen. Marked hypoglycemia is common and obvious hepatic encephalopathy, severe coagulopathy and renal failure can occur. Fetal death is common with severe disease. Fortunately, delivery arrests rapid deterioration of liver function.

During recovery, over the next week to 10 days, evidence of transient diabetes insipidus is common and presumably due to elevated vasopressinase concentrations. When acute pancreatitis develops, the prognosis is more ominous. Ascites is almost universal. Coagulopathy can be a dramatic component of fatty liver of pregnancy. Primarily caused by diminished hepatic synthesis, there is also increased procoagulant consumption.

Prior to the 1970s, maternal and fetal mortality rates were reported to be as high as 75 and 85%, respectively. However, recent reports suggest maternal mortality 0-10% and fetal mortality 8-25%. Maternal deaths usually occurs due to coagulopathy, aspiration, renal failure, liver failure and sepsis. Women surviving from AFLP usually recover without any sequele. LCHAD deficient infants are at subsequent risk for hepatic steatosis, hypoglycemia, coagulopathy, coma and death, all of which can be prevented with the use of a special diet and frequent regular feeding. Infants of all women who were affected by AFLP should undergo molecular analysis for LCHAD gene mutations.

The most critical component of caring for a woman with AFLP is the delivery of her fetus. There is no clear benefit to immediate cesarean delivery versus induction of labor and vaginal delivery with meticulous supportive care. Significant procrastination in effecting delivery may increase the maternal risk of coma, hypoglycemia, renal failure, worsening acidosis and severe hemorrhage. It is preferable to begin a trial of labor induction with close fetal surveillance. Other clinicians recommend cesarean delivery to hasten hepatic healing. With a severe coagulopathy, however, this increases maternal risk. Transfusions with variable amounts of FFP, cryoprecipitate, whole blood, packed red cells and platelets are usually necessary if surgery is performed or if lacerations complicate vaginal delivery. Hepatic dysfunction begins to resolve postpartum. Liver function usually normalizes within a week,
and in the interim, intensive medical support may be required. Only rarely is liver transplantation necessary. AFLP can recur in subsequent pregnancy in a small number of cases.

CONCLUSION

AFLP is an uncommon, life-threatening complication of third trimester with variable presentation. While the natural history of the disease is improvement within 24-48 hours of delivery, it is recommended that patients who are critically ill at the time of presentation, who develop complications, or who continue to deteriorate despite emergency delivery, should be managed in the intensive care unit.

REFERENCES


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**Gi Bleed Survival Higher with Few Transfusions**

A restrictive transfusion strategy in patients with acute upper gastrointestinal bleeding improved outcomes compared with a liberal approach, results of a randomized trial indicated.

*Source: Medpage Today*

**Gi Bleeds: Withholding Transfusions Boosts Survival**

Withholding transfusions until hemoglobin levels are lower than 7%, rather than 9%, improves overall survival by 45% in patients with acute upper gastrointestinal (Gi) bleeding, according to a study published in the January 3 issue of the *New England Journal of Medicine.*

*Source: Medscape*